(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
22 May 2003 (22.05.2003)

PCT

(10) International Publication Number
WO 03/043085 A3

(51) International Patent Classification[7]: H01L 23/498, 23/66, H05K 1/02

(21) International Application Number: PCT/EP02/13209

(22) International Filing Date: 25 October 2002 (25.10.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
01480110.4 13 November 2001 (13.11.2001) EP

(71) Applicant *(for all designated States except MC, US)*: **INTERNATIONAL BUSINESS MACHINES CORPORATION** [US/US]; New Orchard Road, Armonk, NY 10504 (US).

(71) Applicant *(for MC only)*: **COMPAGNIE IBM FRANCE** [FR/FR]; Tour Descartes, 2, avenue Gambetta, La Défense 5, F-92400 Courbevoie (FR).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **ALCOE, Dave** [US/US]; 1600 Butternut Drive, Vestal, NY 13760-1230 (US). **NOWAK, Ronald** [US/US]; 1324 Echo Road, Vestal, NY 13850 (US). **PREDA, Francesco** [IT/IT]; Via Don Minzoni, 9, I-24030 Mozzo (IT). **OGGIONI, Stefano, Sergio** [IT/IT]; Via Caravaggio, 15, I-20145 Besana Brianza (IT).

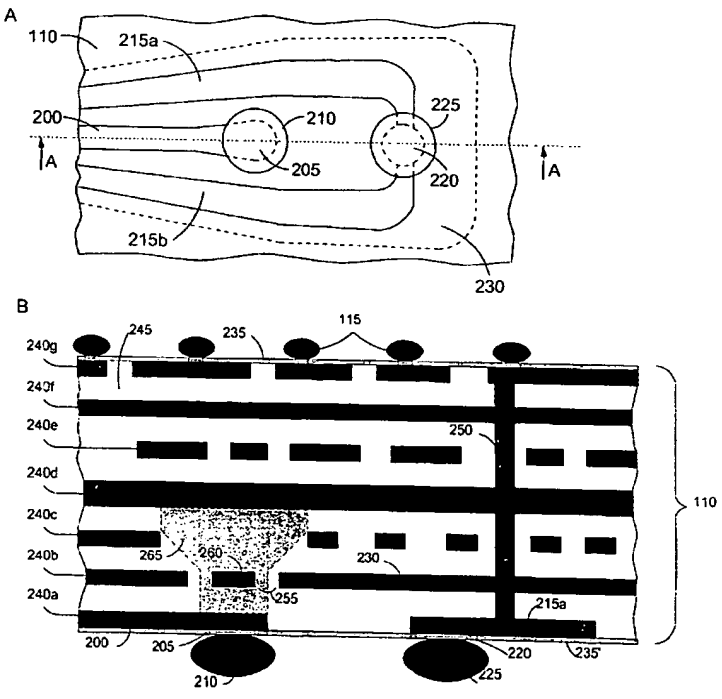
(74) Agent: **DE PENA, Alain**; Compagnie IBM France, Direction de la Propriété Intellectuelle, F-06610 La Gaude (FR).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

[Continued on next page]

(54) Title: ELECTRONIC DEVICE CARRIER ADAPTED FOR TRANSMITTING HIGH FREQUENCY SIGNALS



(57) Abstract: An electronic device carrier (110) adapted for transmitting high-frequency signals, including a circuitized substrate with a plurality of conductive layers (240a to 240g) insulated from each other, the conductive layers being arranged in a sequence from a first one of the conductive layers (240a) wherein a plurality of signal tracks (200) each one ending with a contact area (205) for transmitting a high-frequency signal are formed, and a reference structure (215a, 215b, 230) connectable to a reference voltage or ground for shielding the signal tracks the reference structure includes at least one reference track (230) formed in a second one of the conductive layers (240b) adjacent to the first conductive layer and at least one further reference track formed in one of the conductive layers (240d) different from the first and second conductive layer, a portion of each signal track excluding at least the area corresponding to the orthographic projection of associated contact area being superimposed in plan view to a corresponding reference track and at least a part of the area corresponding to the orthographic projection of the contact area associated to each signal track being superimposed in plan view to a corresponding further reference track with interposition of a floating conductive track, i.e. a track not connected to any signal, reference voltage or ground track.

European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:
— *of inventorship (Rule 4.17(iv)) for US only*

Published:
— *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:
6 November 2003

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 02/13209

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H01L23/498 H01L23/66 H05K1/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H01L H05K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	PATENT ABSTRACTS OF JAPAN vol. 018, no. 661 (E-1644), 14 December 1994 (1994-12-14) -& JP 06 260773 A (OKI ELECTRIC IND CO LTD), 16 September 1994 (1994-09-16) abstract ---	1-11
A	US 5 691 568 A (CHOU TAI-YU ET AL) 25 November 1997 (1997-11-25) figures 5A-G ---	1-11
A	EP 0 834 922 A (INTERGRAPH CORP) 8 April 1998 (1998-04-08) column 8, line 5 -column 9, line 27; figure 4A --- -/--	1-11

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
14 August 2003	25/08/2003

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Edmeades, M

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 02/13209

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 336 855 A (MAY KLAUS P ET AL) 9 August 1994 (1994-08-09) column 4, line 43 -column 6, line 27; figure 3 -----	1-11

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/EP 02/13209

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 06260773 A	16-09-1994	NONE	
US 5691568 A	25-11-1997	JP 10056106 A	24-02-1998
EP 0834922 A	08-04-1998	US 5338970 A	16-08-1994
		EP 0834922 A2	08-04-1998
		DE 69412678 D1	01-10-1998
		DE 69412678 T2	01-04-1999
		DE 69431678 D1	12-12-2002
		EP 0617466 A2	28-09-1994
		JP 7169880 A	04-07-1995
		US 5499445 A	19-03-1996
US 5336855 A	09-08-1994	DE 4100238 A1	09-07-1992
		DE 59206202 D1	13-06-1996
		EP 0495540 A2	22-07-1992
		JP 4307799 A	29-10-1992